What is claimed is:

1. An oligonucleotide having the sequence of SEQ ID NO:1 or which is substantially identical thereto.

2. An oligonucleotide having the sequence of SEQ ID NO:2 or which is substantially identical thereto.

3. An oligonucleotide having the sequence of SEQ ID NO:7 or which is substantially identically thereto.

4. An oligonucleotide having the sequence of SEQ ID NO:8 or which is substantially identically thereto.

5. A kit for detecting expression of a Dihydropyrimidine dehydrogenase (*DPD*) gene in a tissue obtained from a patient comprising oligonucleotide pair DPD3A or a pair of oligonucleotides substantially identical thereto or oligonucleotide pair DPD3B or a pair of oligonucleotides substantially identical thereto.

6. A method of determining the relative level of Dihydropyrimidine dehydrogenase (*DPD*) gene expression in a tissue sample comprising:

   (a) obtaining a tumor sample from a patient;

   (b) isolating mRNA from said tumor sample;

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(c) amplifying the mRNA using an oligonucleotide primer having the sequence of SEQ ID: 1, or which is substantially identical thereto and an oligonucleotide having the sequence SEQ ID: 2, or which is substantially identical thereto;

(d) comparing the amount of Dihydropyrimidine dehydrogenase (*DPD*) mRNA from step (c) to an amount of mRNA of an internal control gene.

7. The method of claim 6, wherein the tumor sample is frozen after being obtained from the patient.

8. The method of claim 6, wherein the tumor sample is fixed after being obtained from the patient.

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9. The method of claim 8, wherein the tumor sample is embedded in paraffin fixed after being fixed.

10. The method of claim 8 or 9, wherein the RNA is isolated in the presence of an effective amount of chaotropic agent.

11. The method of any one of claims 6, 8, or 9, wherein the tumor sample comprises non-tumor tissue and tumor tissue.

12. A method for determining a 5-Fluorouracil-based chemotherapeutic regimen

for treating a tumor in patient comprising:

(a) obtaining a tumor sample from the patient;

(b) isolating mRNA from said tumor sample;

(c) subjecting the mRNA to amplification using a pair of oligonucleotide primers having the sequence of SEQ ID: 1, or which is substantially identical thereto and an oligonucleotide having the sequence SEQ ID: 2, or which is substantially identical thereto to obtain an amplified sample,

(d) determining the amount of Dihydropyrimidine dehydrogenase (*DPD*) mRNA in the amplified sample;

(e) comparing the amount of Dihydropyrimidine dehydrogenase (*DPD*) mRNA in the amplified sample with a predetermined threshold level for *DPD* expression;

(f) determining a 5-Fludrouracil-based chemotherapeutic regimen for said patient based on the difference in amount of *DPD* mRNA in the amplified sample and the threshold level for *DPD* gene expression.

13. The method of claim 12, wherein said predetermined threshold level of *DPD* gene expression is about 2.0 to about 2.5 times internal control gene expression level.

14. The method of claim 12 or 13, wherein said internal control gene is β-actin.

15. The method of claim 13, wherein the tumor sample is fixed and embedded

after being obtained.

16. The method of claim 13, wherein the mRNA is isolated in the presence of an effective amount of chaotropic agent.

17. A method of determining the relative level of Dihydropyrimidine dehydrogenase (*DPD*) gene expression in a tissue sample comprising;

(a) obtaining a tumor sample from a patient;

(b) isolating mRNA from said tumor sample;

(c) amplifying the mRNA using an oligonucleotide primer having the sequence of SEQ ID: 7, or which is substantially identical thereto and an oligonucleotide having the sequence SEQ ID: 8, or which is substantially identical thereto;

(d) comparing the amount of the mRNA from step (c) to an amount of mRNA of an internal control.

18. The method of claim 17, wherein the tumor sample is frozen after being obtained from the patient.

19. The method of claim 17, wherein the a tumor sample is embedded in paraffin fixed after being fixed.

20. The method of claim 19, wherein the mRNA is isolated in the presence of an effective amount of chaotropic agent.

21. The method of claim 17 wherein the tissue sample is obtained from a tumor.

22. The method of claim 20, wherein a tumor sample comprises non-tumor tissue and tumor tissue.

23. A method for determining a 5-Fluorouracil-based chemotherapeutic regimen for treating a tumor in a patient comprising:

(a) obtaining a tumor sample from the tumor;

(b) isolating mRNA from a tumor sample;

(c) subjecting the mRNA to amplification using a pair of oligonucleotide primers having of the sequence of SEQ ID: 7, or which is substantially identical thereto and an oligonucleotide having the sequence SEQ ID: 8, or which is substantially identical thereto, to obtain an amplified sample;

(d) determining the amount of Dihydropyrimidine dehydrogenase (*DPD*) mRNA in the amplified sample;

(e) comparing the amount of Dihydropyrimidine dehydrogenase (*DPD*) mRNA in the amplified sample with a predetermined threshold level for *DPD* expression;

(f) determining a 5-Fluorouracil-based chemotherapeutic regimen for said patient based on the difference in amount of *DPD* mRNA in the amplified sample and the threshold level for *DPD* gene expression.

24. The method of claim 23, wherein said predetermined threshold level of *DPD* gene expression is about 2.0 to about 2.5 times internal control gene expression level.

25. The method of claim 23, or 24, wherein said internal control gene is β-actin.

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26. The method of any one of claims 5, 6, 12, 17, or 23; wherein the at least one tissue sample contains bronchoalveolar tumor tissue, small bowel tumor tissue or colon tumor tissue.